

is an excellent example of what can be done under the new impulse given to the old practice of "nature-study." It shows how members of our fauna, that have long suffered from negligent and contemptuous treatment, may in friendly hands receive their proper meed of appreciation. Though, out of deference to tradition, the book goes by the unprepossessing name of "The British Woodlice," its subtitle redeems the subject from prejudice by assigning it to its true place in classification. The many scurrilous colloquial terms that have been applied to these terrestrial isopods have, to the ordinary observer, obscured the fact that they are really made of one flesh and blood with the epicure's cherished treasures, the lobster and the prawn. Their use medicinally in old times would probably have been robbed of half its charm had this been understood, since in those days curative agencies seem to have been valued in proportion to the pain and disgust they inflicted on the patient. So lately as 1883, W. G. Black, in his "Folk Medicine," writes:—

"A relation of mine was in the cottage of a wise woman at Penzance about two years ago, and found that she was still in the habit of prescribing in scrofulous cases grammar sows, sow-pigs, millipedes or woodlice, to be swallowed as a pill. According to the Penzance woman, the sufferer must himself secure his medicine, but she had a corner in her little garden where nothing was grown but mint and thyme, and there the sow-pigs were reared. As a concession to modern feelings, patients are now allowed to wear this disagreeable medicine in a little bag round the neck, if they shrink from the heroic remedy of swallowing it."

One may wonder whether the man who first ate a shrimp thought himself a hero! It will be noticed that the wise woman of Penzance had to foster her colony of animated pills. Mr. Webb also recounts the efforts of industrious research on the part of himself and others by which the present small total of British species has been slowly ascertained. Some of the species, indeed, are known to be widely distributed, and in places to be very abundant. But there is little proof that even those which have the worst repute for depredation do any serious amount of harm in our gardens. They are chiefly to be found in rubbish heaps or nests of garden pots, or under flat, neglected stones. Many of the species are the rare prizes of diligent collectors. Mr. Webb has given a very full and faithful record of published captures, the only work of importance which he does not appear to have thoroughly examined being the *Transactions of the Devonshire Association*. Ireland, with a list of species not quite equal to that of England, still in *Trichoniscus vividus* (Koch) keeps one form exclusively to herself. In the very large number of European species all of ours are included, and twenty of them have been described by Prof. G. O. Sars in his admirable work on the *Crustacea of Norway*.

The authors of the present volume are most scrupulous in acknowledgment of assistance they have received from various sources. They are to be congratulated on their own accuracy and diligence. The results of their good work in the field, with the

microscope, and in the study of the available literature on the subject are presented in a compendious and excellently illustrated treatise. Marine isopods are sometimes found with the front half of the body much narrower than the after part. Light is thrown upon this odd appearance by one of the incidents of exuviation. The animal sheds the hind part of its skin first, while the more dilatory front remains still incapable of expansion in its old armour. Messrs. Webb and Sillem explain that this is just what happens with our garden shrimps, there being an interval of three days or so between the two stripplings. Their authority on this point, Mr. J. B. Casserley, has also observed that the thrifty creature eats the skin which it has shed. What fortunes there are to be made out of waste products! The habit is no doubt widely diffused among crustaceans, otherwise their innumerable cast skins would be more frequently met with.

The well-drawn plates of this commendable volume are not coloured, but the student whom it inspires to take up the subject may find exceptional attraction in the specific names of *Armadillidium pulebellum*, the beautiful little Armadillo, *Porcellio pictus*, the painted Porcellio, and above all *Trichoniscus roseus*, the rose-tinted Trichoniscus.

T. R. R. S.

AUSTRALIAN ETHNOLOGY.

Ethnological Notes on the Aboriginal Tribes of New South Wales and Victoria. By R. H. Mathews. Pp. xiv+183. (Sydney: F. W. White, 1905.)

THE author of this work has published numerous articles on Australian anthropological subjects during the past ten years, but they have either been ignored or dismissed in a footnote by experts such as Dr. Howitt and Prof. Baldwin Spencer. A careful examination of his contributions does not give a high opinion of the author's qualifications for his task. The present volume contains a bibliography of the author's articles and some assertions as to the importance of this new contribution, of which the following sentences are specimens:—"Those portions of my book dealing with sociology," at pp. 5-15 and 84-103, will completely revolutionise all the old school notions respecting the organisation of Australian tribes "which have been published up to this date" (p. 4). "I have adopted none of the opinions nor followed any of the methods of other Australian authors, but have struck out on my own lines" (p. 2). "Since the time of Mr. Ridley and Mr. Bridgeman down to the present day, nothing important has been added to our knowledge of the Kamilaroi organisation" (p. 13).

It requires self-assurance to make the last of these three assertions, for Mr. Mathews can hardly expect his readers to be so ignorant as never to have heard of Dr. Howitt, whose "Native Tribes," published the year before last, contains much information on the subject, even if we neglect "Kamilaroi and Kurnai," published by him nearly five-and-twenty years ago in collaboration with Dr. Fison. In the work before us the main novelty in the way of sociological information appears to be the statement

that the Ngeumba tribe is divided into "castes" and "bloods" as well as kins and phratries. The Ngeumba, whom another writer seems to have termed Nyamba, are near neighbours of the Euahlayi on the Narran River, and the names for the "blood" divisions in the Ngeumba tribe are virtually identical with those given as phratry names by Mrs. Langloh Parker for the Euahlayi. That being so, we have the choice of three theories:—(1) that both authors are correct; (2) that Mr. Mathews has confused two tribes; or (3) that Mrs. Parker's information is incomplete. In view of the fact that she resided twenty years among them and gained the full confidence of the Euahlayi, the latter seems improbable; we are therefore left to choose between a superposition of organisations or a confusion created by Mr. Mathews. He does not work out how the "blood" organisation affects the ordinary social organisation.

The "castes" are stated to have reference to the manner of camping and to denote the shade of various parts of a tree; our confidence in this explanation is not increased by the discovery that one of the words, *nurai*, is the ordinary name for the black snake totem in two or three adjoining tribes. It is to be hoped that some anthropologist of reputation will turn his attention to the tribe. If Mr. Mathews's information turns out to be correct, he will have done something towards establishing his reputation.

N. W. T.

THE BREEDING INDUSTRY.

The Breeding Industry. By Walter Heape, F.R.S. Pp. xii+154. (Cambridge: University Press, 1906.) Price 2s. 6d. net.

THE author of the present volume has long been distinguished for his investigations in vertebrate embryology and the physiology of vertebrate reproduction. He has also paid considerable attention to the practical aspects of the subject, in so far as they concern the methods adopted by the animal breeder and the needs of the breeding industry. In the light of the special knowledge and experience which he has thus gained, Mr. Heape has become firmly convinced that the breeder will derive "inestimable advantage from the right application of science to the industry with which he is concerned," while it is no less his strong belief "that the field of scientific biology will be broadened, the number of workers therein increased, and the means available for their work augmented, as the result of . . . more intimate relations between scientific and practical biologists." Those who read this volume, and all others who are familiar with the nature of the questions discussed therein, can have little difficulty in realising that Mr. Heape is right.

The first chapter, which is introductory in character, deals with the present position of the breeding industry in our own country. The scientific man and the breeder are too frequently antagonistic, and tend to distrust one another. This antagonism, which

is quite unnecessary, is as much the fault of the man of science as of the practical man, and it is to be partly ascribed to the unsympathetic attitude of the former towards many of the facts and problems of practical breeding, as well as to the general neglect by professed biologists of that wide field of investigation comprised within the physiology of reproduction. All this is pointed out in somewhat different language by the author, who lays great stress on the enormous advantages to be gained by the introduction of scientific method into the industry of breeding, just as it has proved invaluable to other industries.

The second chapter consists of a concise, clear, and eminently business-like calculation of the value of the breeding industry to the country. As a result of this calculation Mr. Heape arrives at the truly remarkable conclusion that the total sum invested in live-stock in the British Islands is scarcely less than 450,000,000.—an estimate which does not appear to err on the side of excess. Added to this the capital invested in various accessories—vehicles, machinery, housing, &c.—the total becomes still more gigantic. And yet, in the words quoted from Mr. Bateson, the breeding industry is one "to which science has never yet been applied."

In a further chapter the author deals with the nature of the work required for the advancement of the breeding industry. This is comprised under three heads—(1) the keeping of records, (2) the carrying on of research, and (3) the work of administration—all of which are shown to be of the utmost importance. Under the heading of research the author alludes to the special nature of certain of the problems which require elucidation, and particularly those relating to the physiology of the generative system. He might have added that proper facilities for carrying out this kind of research are at present practically non-existent. Such as do exist are due almost entirely to private enterprise and generosity. In order to conduct on any considerable scale investigations upon questions involving the maintenance of animals under reasonably natural conditions and for prolonged periods of time, as well as for the study of the phenomena of inheritance and variation, the creation of some sort of experiment station or biological farm has become a matter of urgent necessity. For carrying on the work of administration Mr. Heape advocates the institution of a State department of animal industry, which would form a section of a new Board of Agriculture.

In the final chapter the management and work of the present Board of Agriculture are discussed, and it is pointed out that there is a want of confidence in its methods and an inadequacy about its organisation which compare unfavourably with those of the corresponding American department.

Mr. Heape's book is well calculated to arouse public interest, for the problem with which it deals is the concern, not only of the man of science, but of all who have regard for the welfare of one of the greatest industries of the nation.

FRANCIS H. A. MARSHALL.